

Abstract of the Disclosure

The present invention utilizes an even harmonic mixer for canceling a local oscillator (LO) leakage signal. The apparatus for canceling the LO leakage signal includes an in-phase divider, an intermediate frequency (IF) phase divider, an even harmonic mixers, an RF signal phase combiner and a band pass filter (BPF). The in-phase divider divides an LO signal into two in-phase LO signals, wherein the LO signal is inputted from an exterior LO. The IF phase divider divides an IF signal into two out-of-phase IF signals of which a phase difference is  $90^\circ$ , wherein the IF signal is inputted from an exterior means. The even harmonic mixer outputs two out-of phase RF signals of which the phase difference is  $90^\circ$ , after even-harmonic mixing of two in-phase LO signals divided by the in-phase divider and two out-of-phase IF signals divided by the IF phase divider. The RF signal phase combiner plays a role in canceling an image signal in the RF signal by combining two out-of-phase RF signals outputted from the even harmonic mixer. The BPF is used for canceling a residual component of the leakage signal in the RF signal outputted from the RF signal phase combiner.